

PRE-APPEAL BRIEF REQUEST FOR REVIEW	Docket Number (Optional) MAT-8466US	
	Application Number 10/670,636	Filed September 24, 2003
	First Named Inventor Keiko Morii et al.	
	Art Unit 2626	Examiner Angela A. Armstrong

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
 Note: No more than five (5) pages may be provided.

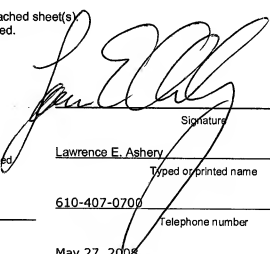
I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
 See 37 CFR 3.7.1 Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96)

☒ attorney or agent of record.
 Registration number 34,515

☐ attorney or agent acting under 37 CFR 1.34.
 Registration number if acting under 37 CFR 1.34 _____



 Signature
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 Typed or printed name
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 Telephone number
May 27, 2008
 Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Reasons Review is Requested

Applicants' invention relates to methods for speaker normalization and apparatus for speech recognition. Applicants' claims include features neither disclosed nor suggested by the cited art. Namely, the cited art do not disclose or suggest the combination of: 1) determining, for each frame, a plurality of similarities/distances using frequency-converted feature parameters, 2) selecting at least one frequency conversion coefficient using the plurality of similarities/distances for each of the frames and 3) normalizing the input utterance by frequency-converting the input utterance using the selected frequency conversion coefficient.

Claims 1-15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada et al. (U.S. 5,692,097) in view of Chuang (U.S. 4,941,178). This ground for rejection is respectfully traversed for the reasons set forth below.

Claim 1 includes features neither disclosed nor suggested by the cited art, namely:

...for each of the frames, frequency-converting the respective acoustic feature parameter by filtering with a plurality of predetermined frequency conversion coefficients to form a corresponding plurality of frequency-converted feature parameters...

...determining, for each frame, a plurality of similarities or distances between each of the frequency-converted feature parameters and a standard phonemic model...

...selecting at least one of the plurality of predetermined frequency conversion coefficients... by using the determined plurality of similarities or distances for each of the frames...

normalizing the input utterance by frequency-converting the input utterance using the selected at least one predetermined frequency conversion coefficient... (Emphasis Added)

Claim 8 includes a similar recitation.

Yamada et al. disclose, in Figs. 1 and 6, a voice recognizing apparatus including feature parameter extracting unit 13 that extracts feature parameters, phoneme similarity calculating unit 15 and normalized similarity vector calculating unit 16. Phoneme similarity calculating unit 15 determines a phoneme similarity for each frame between standard pattern phonemes (in storing unit 14) and the extracted feature parameters (from feature parameter extracting unit 13) to obtain similarity vectors (Col. 2, lines 4-10 and Col. 2, line 61-Col. 3, line 26).

Normalized similarity vector calculating unit 16 normalizes a vector length of each similarity vector to unity (Col. 3, lines 46-50).

As acknowledged by the Examiner on page 2, paragraph 4 of the Final Office Action, Yamada et al. do not disclose or suggest Applicants' claimed feature of "frequency-converting the respective acoustic feature parameter by filtering with a plurality of predetermined frequency conversion coefficients to form...frequency-converted feature parameters" (emphasis added). In addition, Yamada et al. do not disclose or suggest Applicants' claimed features of 1) "determining...a plurality of similarities or distances between each of the frequency-converted feature parameters and a standard phonemic model," 2) "selecting at least one of the...predetermined frequency conversion coefficients...by using the determined plurality of similarities or distances for each of the frames" or 3) "normalizing the input utterance by frequency-converting the input utterance using the selected...predetermined frequency conversion coefficient" (emphasis added). These features are neither disclosed nor suggested by Yamada et al.

On page 2, paragraph 4 of the Final Office Action, the Examiner asserts that Yamada et al. discloses a voice recognition method for recognizing a word in speech, which implements a normalizing similarity vector calculating unit, and refers to Col. 18, line 18-Col. 31, line 44 of Yamada et al. Applicants have carefully reviewed Col. 18, line-Col. 31 line 44 of Yamada et al. and can find no disclosure of Applicants' claimed features of: 1) determining a plurality of similarities or distances between each of frequency-converted feature parameters and a standard phonemic model, 2) selecting at least one predetermined frequency conversion coefficient using the determined similarities or distances for each of the frames and 3) normalizing the input utterance by frequency-converting the input utterance using the selected predetermined frequency conversion coefficient. In paragraph 2, pages 2-3 of the Advisory Action, the Examiner lists a number of features of Yamada et al. The Examiner, however, does not identify where Yamada et al. disclose Applicants' three claimed features. Accordingly, Applicants respectfully request that the Examiner either specifically point out where Yamada et al. disclose these features or withdraw the rejection.

Chuang discloses, in Fig. 1A, a speech recognition system including slope filter estimate 16 and inverse filter 22 that provide a slope removal process to normalize the slope of LPC coefficients (Col. 4, lines 1-26 and Col. 6, line 63-Col. 7, line 52). The speech recognition system also includes all-pass filter 30, spectral warping 32 and time warping 34 for spectral

normalization (after the slope normalization) and where the slope normalization and spectral normalization are regarded as speaker normalization. (Col. 8, lines 15-61 and Col. 9, lines 60-62). All-pass filter 30 provides expansion and compression of the LPC analysis results 24 along the frequency axis (Col. 8, lines 15-31 and Col. 8, lines 62-Col. 9, line 37).

Chuang does not make up for the deficiencies of Yamada et al. because it does not disclose or suggest: 1) determining a plurality of similarities or distances between each of frequency-converted feature parameters and a standard phonemic model, 2) selecting at least one predetermined frequency conversion coefficient by using the determined similarities or distances for each of the frames or 3) normalizing the input utterance by frequency-converting by the input utterance using the selected predetermined frequency conversion coefficient, as required by claim 1. Applicants have reviewed Col. 8, line 15-Col. 9, line 37 of Chuang, cited by the Examiner in the Final Office Action and the Advisory Action, and can find no disclosure of these features of claim 1. Applicants respectfully request that the Examiner either specifically point out where Chuang discloses these features or withdraw the rejection. As described above, the combination of: 1) determining, for each frame, a plurality of similarities/distances between frequency-converted feature parameters and a standard phonemic model, 2) selecting at least one predetermined frequency conversion coefficient using the determined similarities/distances for each of the frames and 3) normalizing the input utterance by frequency-converting the input utterance using the selected predetermined frequency conversion coefficient is neither disclosed nor suggested by the cited art. Accordingly, allowance of claim 1 is respectfully requested.

Claims 2-7 include all of the features of claim 1 from which they depend. Accordingly, claims 2-7 are also patentable over the cited art.

Claim 8, although not identical to claim 1, includes features similar to claim 1 that are neither disclosed nor suggested by the cited art. Namely, 1) frequency converting an extracted acoustic feature parameter by filtering with a plurality of predetermined frequency conversion coefficients, 2) determining plural similarities/distances with frequency-converted feature parameters, 3) selecting at least one predetermined frequency conversion coefficient by using the determined similarities or distances for each frame or 4) normalizing the input utterance by frequency-conversion using a selected frequency conversion coefficient. As discussed above, these features are neither disclosed nor suggested by the cited art. Accordingly, allowance of claim 8 is respectfully requested.

Claims 9-15 include all of the features of claim 8 from which they depend. Accordingly, claims 9-15 are also patentable over the cited art.

In view of the arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

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